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DISEASE NOTES

First Report of *Phomopsis* Fruit Rot of Eggplant in Reunion Island

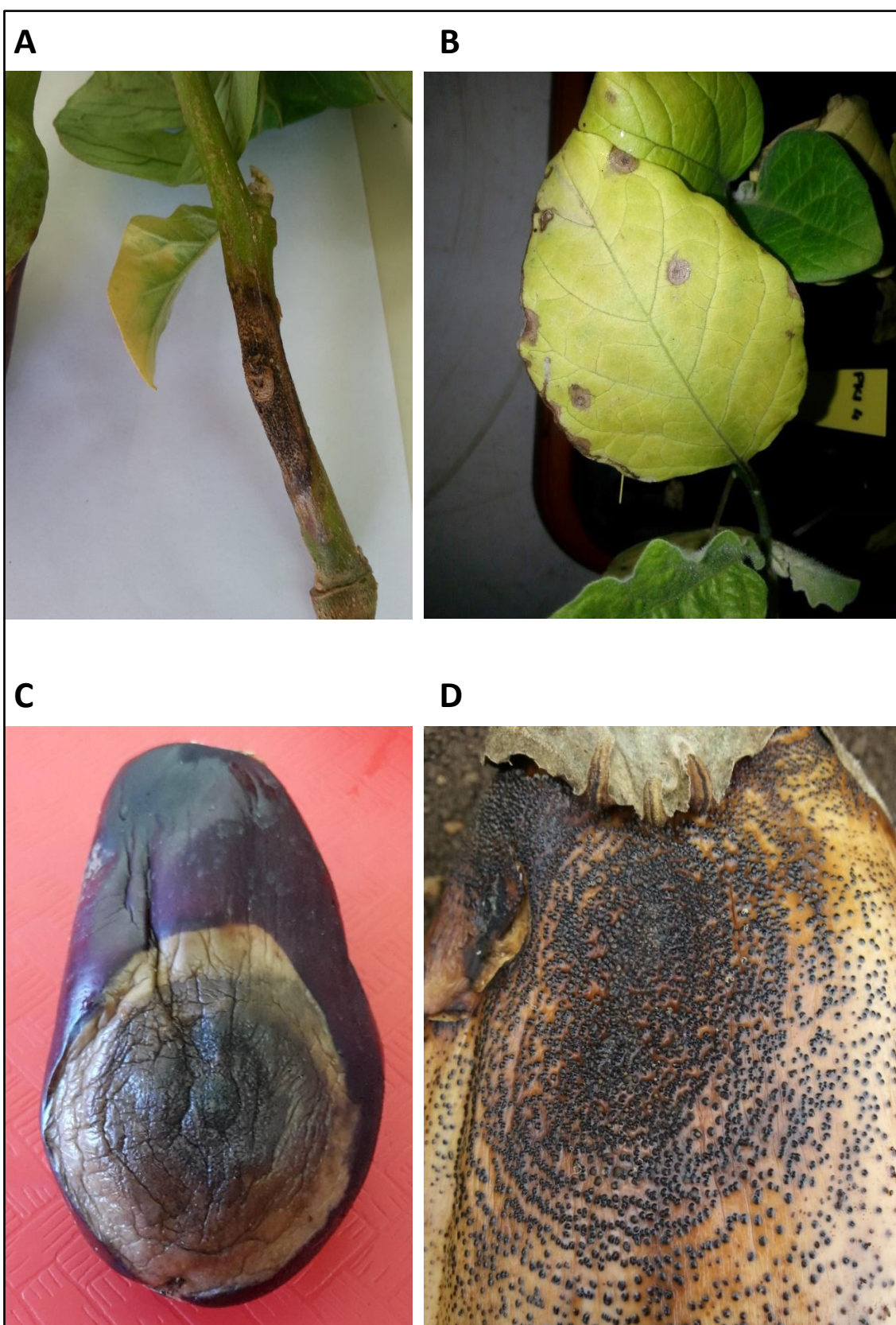
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Fruit rot is one of the major diseases of eggplant (*Solanum melongena* L.) crops especially in India (Mahadevakumar and Janardhana 2016). First cases of fruit rot of eggplant were reported in 1990 in Reunion Island on the local cultivar Bringelle Rond. Typical symptoms include spots on leaves, cankers on stems (brown-to-black lesions), and fruit rots showing characteristic concentric rings and subepidermal black pycnidia. These symptoms are commonly associated with the fungus *Diaporthe vexans* (asexual state: *Phomopsis vexans*). From March to May 2016, a survey was conducted to identify the causal agent. Symptomatic fruits were collected in Piton Bloc, Petite Île, and Ligne Paradis. Fruits were surface-disinfected with 10% hypochlorite sodium solution and 70% alcohol. Fungal strains were isolated from symptoms on potato dextrose agar (PDA) medium with ampicillin (100 µg/ml). Each isolate was subcultured on PDA medium and DNA was extracted using the PowerSoil DNA isolation kit (MO BIO Laboratories). PCR amplification and DNA amplicon sequencing of the EF1-α gene and the ITS1, 5.8S, and ITS2 region were performed using respectively, EF1-α primers (Carbone and Kohn 1999) and a primer pair ITS1F/ITS4 (Gardes and Bruns 1993; White et al. 1990). Comparison of all amplicon sequences between themselves revealed that isolates share the same EF1-α sequence (KY621997–99) and the same ITS sequence (KY007512–14). Comparison of sequences with nucleotide *D. vexans* sequences available in GenBank revealed an identity of 90% for EF1-α and between 93 and 95% for ITS. Best sequence identity were obtained for ITS sequences from *D. ganjae* (identity, 97%), *D. melonis* (identity, 96%), *D. endophytica* (identity, 96%), *D. phaseolorum* (identity, 96%), and *P. lactucae* (identity, 96%). The best EF1-α sequence identity was 94% (*Phomopsis* sp. JMS-2010a). None of these species have been reported as pathogens on eggplant. These results show that the fungus isolated on eggplant fruits in Reunion Island belongs to the *Diaporthe* genus but differs from species described in the literature and databases. The isolate from Piton-Bloc was grown on PDA with ampicillin under natural light cycle at 25°C and a conidia suspension was adjusted in distilled water to 1×10^6 conidia per ml. Pathogenicity was checked on Bringelle Rond and Bringelle Saucisse cultivars using eight replicates per condition (inoculated versus mock). Each leaf of 40-day-old plants was spray-inoculated two times (interval of 24 h) with 100 µl of the suspension. Plants were grown in a fully controlled environment (day/night temperature of 30/25°C ± 1°C under 90% of relative humidity). No symptoms were observed on plants treated with the mock solution whereas *Phomopsis* symptoms were observed on inoculated plants within 18 days post inoculation. The fungus was reisolated from surface-disinfected leaves exhibiting typical *Phomopsis* spots. The comparison of ITS sequence of the inoculated strain with those of the reisolated strains (KY007515–16) revealed 100% identity, confirming Koch's postulate. This is the first report of *Phomopsis* fruit rot of eggplant in Reunion Island. Taxonomic works based on a morphologic/morphometric study of an extended sampling and the sequencing of additional genes will be necessary to confirm that the causal agent is a new species of *Diaporthe/Phomopsis*.

References:

- Carbone, I., and Kohn, L. M. 1999. *Mycologia* 91:553. 10.2307/3761358 [CrossRef] [ISI]
- Gardes, M., and Bruns, T. D. 1993. *Mol. Ecol.* 2:113. 10.1111/j.1365-294X.1993.tb00005.x [CrossRef] [ISI]
- Mahadevakumar, S., and Janardhana, G. R. 2016. *Plant Pathol. Quarantine* 6:5. 10.5943/ppq/6/1/2 [CrossRef]
- White, T. J., et al. 1990. Page 315 in: *PCR Protocols: A Guide to Methods and Applications*. Academic Press, San Diego. [CrossRef]

Typical symptoms of Phomopsis on eggplant in Reunion Island



A, Phomopsis stem canker (brown-to-black lesions); B, Phomopsis leaf spots; C, Phomopsis fruit rot showing concentric rings and D, Subepidermal black pycnidia on fruits.

Fungal strains of *Phomopsis* sp. isolated from eggplant fruits in Reunion Island

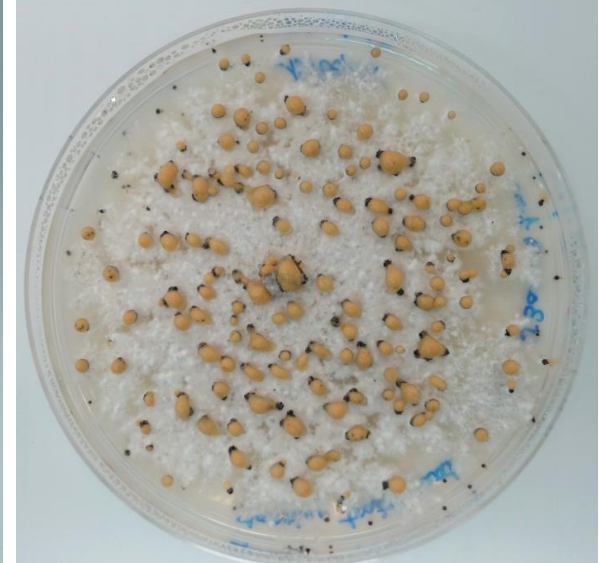
A



B



C



Fungal isolates on potato dextrose agar (PDA) medium with ampicillin from eggplant symptomatic fruits collected in Piton-Bloc (A), Ligne-Paradis (B) and Petite-ile (C). Pycnidia (black dots) are produced within 30 days post isolation from fruit tissues.